

Amendments to the Claims:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1. - 33. (Cancelled)

34. (Currently Amended) A method of making a microlithography system that forms an image onto an object, comprising the steps of:

providing an irradiation apparatus that irradiates the object with radiation to form the image on the object;

providing a movable stage associated with the irradiation apparatus, the movable stage having a first mirror;

providing a first support structure;

providing a second support structure dynamically isolated from the first support structure, the second support structure including a base member that supports the movable stage;

providing a drive having a first portion connected to the movable stage and a second portion connected to the first support structure to move the movable stage in a two-dimensional plane such that a reaction force exerted by the movement of the movable stage is transferred to the first support structure, the second portion of the drive not contacting the movable stage mechanically; and

providing a position detector that cooperates with the first mirror to detect a position of the movable stage in the two-dimensional plane, the position detector being supported by the second support structure.

35. (Previously Presented) A method according to claim 34, wherein the second support structure supports the irradiation apparatus.

36. (Previously Presented) A method according to claim 35, wherein the irradiation apparatus includes a projection system.

37. (Previously Presented) A method according to claim 36, wherein the projection system optically projects the image.

38. (Previously Presented) A method according to claim 36, wherein the movable stage is located below the projection system.

39. (Previously Presented) A method according to claim 35, wherein the irradiation apparatus includes a mask holder that holds a mask that defines the image.

40. (Previously Presented) A method according to claim 34, wherein the second support structure has a first portion that supports the movable stage and a second portion that supports the irradiation apparatus.

41. (Previously Presented) A method according to claim 40, wherein the first portion and the second portion are connected rigidly to each other.

42. (Previously Presented) A method according to claim 36, wherein the position detector projects a light beam to the first mirror fixed to the movable stage and to a second mirror fixed to the projection system.

43. (Previously Presented) A method according to claim 34, wherein the movable stage is a guideless stage having no associated guide member to guide its movement.

44. (Previously Presented) A method according to claim 34, wherein the movable stage is a substrate stage on which the object is supported.

45. - 46. (Cancelled)

47. (Previously Presented) A method according to claim 43, wherein the guideless stage is movable over a surface of the base member on a bearing.

48. (Previously Presented) A method according to claim 47, wherein the bearing is a non-contact bearing that supports the guideless stage.

49. (Previously Presented) A method according to claim 48, wherein the non-contact bearing comprises an air bearing.

50. (Previously Presented) A method according to claim 48, wherein the non-contact bearing includes a magnet and a cooperating coil.

51. (Cancelled)

52. (Previously Presented) A method according to claim 34, wherein a substrate stage is movable over a surface of the base member on a bearing.

53. (Previously Presented) A method according to claim 52, wherein the bearing is a non-contact bearing that supports the substrate stage.

54. (Previously Presented) A method according to claim 53, wherein the non-contact bearing comprises an air bearing.

55. (Previously Presented) A method according to claim 53, wherein the non-contact bearing includes a magnet and a cooperating coil.

56. (Previously Presented) A method according to claim 34, wherein the second support structure is supported on a foundation.

57. (Previously Presented) A method according to claim 56, further comprising:
providing a block between the foundation and the second support structure.

58. (Previously Presented) A method according to claim 57, wherein the block comprises a vibration absorbing assembly that prevents transmission of vibration from the foundation to the second support structure.

59. (Previously Presented) A method according to claim 56, wherein the foundation is the ground or a base structure.

60. (Previously Presented) A method according to claim 34, wherein the drive comprises a linear motor.

61. (Previously Presented) A method according to claim 60, wherein the linear motor comprises a magnet and a coil.

62. (Previously Presented) A method according to claim 61, wherein the first support structure supports one of the magnet and the coil.

63. (Previously Presented) A method according to claim 34, wherein the drive rotates the movable stage on an axis of the movable stage.

64. (Previously Presented) A method according to claim 63, wherein the drive moves the movable stage based on a detection result by the position detector so as to effect yaw correction.

65. (Previously Presented) A method according to claim 63, wherein the movable stage is a guideless stage having no associated guide member to guide its movement.

66. (Previously Presented) A method according to claim 63, wherein the movable stage is a substrate stage on which the object is supported.

67. (Previously Presented) A method according to claim 34, wherein the drive moves the movable stage in the two-dimensional plane, including movement in the plane in a first linear direction, in a second linear direction and in a rotative direction on an axis of the movable stage.

68. (Previously Presented) A method according to claim 67, wherein the drive moves the movable stage based on a detection result by the position detector so as to effect yaw correction.

69. (Previously Presented) A method according to claim 67, wherein the movable stage is a guideless stage having no associated guide member to guide its movement.

70. (Previously Presented) A method according to claim 67, wherein the movable stage is a substrate stage on which the object is supported.

71. (Previously Presented) A method according to claim 34, wherein the first support structure at least partly supports the drive.

72. (Currently Amended) An image forming method that forms an image onto an object, comprising the steps of:

moving a stage in a two-dimensional plane of a base member by a driver, the driver having a first portion connected to the stage and a second portion not connected to the stage mechanically;

transferring a reaction force caused by the movement of the stage to a first support structure, the first support structure connected to the second portion of the driver;

detecting a position of the stage in the two-dimensional plane by a position detector that is supported by a second support structure dynamically isolated from the first support structure, the second support structure supports the stage and the base member; and

forming the image onto the object by movement of the stage.

73. (Previously Presented) A method according to claim 72, wherein the image is formed on the object by an irradiation apparatus.

74. (Previously Presented) A method according to claim 73, wherein the irradiation apparatus is a projection system.

75. (Previously Presented) A method according to claim 74, wherein the step of moving the stage includes aligning the stage with the projection system.

76. (Previously Presented) A method according to claim 74, wherein the projection system optically projects the image.

77. (Previously Presented) A method according to claim 74, wherein the second support structure supports the projection system.

78. (Previously Presented) A method according to claim 74, wherein the stage is located below the projection system.

79. (Cancelled)

80. (Previously Presented) A method according to claim 77, wherein the second support structure has a first portion that supports the stage, and a second portion that supports the projection system.

81. (Previously Presented) A method according to claim 80, wherein the first portion and the second portion are connected rigidly to each other.

82. (Previously Presented) A method according to claim 74, wherein the step of detecting a position of the stage comprises projecting a light beam to a first mirror fixed to the stage and to a second mirror fixed to the projection system.

83. (Previously Presented) A method according to claim 72, wherein the stage is a guideless stage having no associated guide member to guide its movement.

84. - 86. (Cancelled)

87. (Previously Presented) A method according to claim 83, wherein the guideless stage is movable over a surface of the base member on a bearing.

88. (Previously Presented) A method according to claim 87, wherein the bearing is a non-contact bearing that supports the guideless stage.

89. (Previously Presented) A method according to claim 88, wherein the non-contact bearing comprises an air bearing.

90. (Previously Presented) A method according to claim 88, wherein the non-contact bearing includes a magnet and a cooperating coil.

91. (Previously Presented) A method according to claim 72, wherein the stage is a substrate stage on which the object is supported.

92. (Previously Presented) A method according to claim 91, wherein the substrate stage is movable over a surface of the base member on a bearing.

93. (Previously Presented) A method according to claim 92, wherein the bearing is a non-contact bearing that supports the substrate stage.

94. (Previously Presented) A method according to claim 93, wherein the non-contact bearing comprises an air bearing.

95. (Previously Presented) A method according to claim 93, wherein the non-contact bearing includes a magnet and a cooperating coil.

96. (Previously Presented) A method according to claim 72, wherein the second support structure is supported on a foundation.

97. (Previously Presented) A method according to claim 96, wherein the second support structure is supported on the foundation with a block between the foundation and the second support structure.

98. (Previously Presented) A method according to claim 97, wherein the block comprises a vibration absorbing assembly that prevents transmission of vibration from the foundation to the second support structure.

99. (Previously Presented) A method according to claim 96, wherein the foundation is the ground or a base structure.

100. (Previously Presented) A method according to claim 72, wherein the stage moves based on a detection result by the position detector.

101. (Previously Presented) A method according to claim 72, further comprising the step of:

effecting yaw correction of the stage.

102. (Previously Presented) A method according to claim 72, wherein the movement of the stage is carried out by cooperation with a first member that is located on the first support member, and a second member that is connected to the stage.

103. (Previously Presented) A method according to claim 102, wherein the first member is one of a magnet and a coil.

104. (Currently Amended) A method of making a positioning apparatus that positions an object, comprising the steps of:

providing a movable stage that holds the object, the movable stage having a first mirror;

providing a first support structure;

providing a second support structure dynamically isolated from the first support structure, the second support structure including a base member that supports the movable stage;

providing a drive having a first portion connected to the movable stage and a second portion connected to the first support structure to move the movable stage in a two-dimensional plane such that a reaction force exerted by the movement of the movable stage is transferred to the first support structure, the second portion of the drive not in contact with the movable stage mechanically; and

providing a position detector that cooperates with the first mirror to detect a positional information of the object in the two-dimensional plane, the position detector being supported by the second support structure.

105. (Cancelled)

106. (Previously Presented) A method according to claim 104, wherein the second support structure is supported on a foundation.

107. (Previously Presented) A method according to claim 106, further comprising:

providing a block between the foundation and the second support structure.

108. (Previously Presented) A method according to claim 107, wherein the block comprises a vibration absorbing assembly that prevents transmission of vibration from the foundation to the second support structure.

109. (Previously Presented) A method according to claim 106, wherein the foundation is the ground or a base structure.

110. (Previously Presented) A method according to claim 104, wherein the drive rotates the object on an axis of the object.

111. (Previously Presented) A method according to claim 110, wherein the drive moves the object based on a detection result by the position detector so as to effect yaw correction.

112. (Previously Presented) A method according to claim 104, wherein the drive moves the object in the two-dimensional plane, including movement in the plane in a first linear direction, in a second linear direction and in a rotative direction on an axis of the object.

113. (Previously Presented) A method according to claim 112, wherein the drive moves the object based on a detection result by the position detector so as to effect yaw correction.

114. - 115. (Cancelled)

116. (Previously Presented) A method according to claim 104, wherein the position detector projects a light beam to the first mirror fixed to the movable stage.

117. (Previously Presented) A method according to claim 104, wherein the movable stage is a guideless stage having no associated guide member to guide its movement.

118. - 119. (Cancelled)

120. (Previously Presented) A method according to claim 117, wherein the guideless stage is movable over a surface of the base member on a bearing.

121. (Previously Presented) A method according to claim 120, wherein the bearing is a non-contact bearing that supports the guideless stage.

122. (Previously Presented) A method according to claim 121, wherein the non-contact bearing comprises an air bearing.

123. (Previously Presented) A method according to claim 121, wherein the non-contact bearing includes a magnet and a cooperating coil.

124. - 129. (Cancelled)

130. (Previously Presented) A method according to claim 104, wherein the drive comprises a magnet and a coil.

131. (Previously Presented) A method according to claim 130, wherein the first support structure supports one of the magnet and the coil.

132. (Previously Presented) A method according to claim 104, wherein the first support structure at least partly supports the drive.

133. (Currently Amended) A positioning method that positions an object, comprising the steps of:

moving a stage that holds the object in a two-dimensional plane of a base member by a driver, the driver having a first portion connected to the stage and a second portion not connected to the stage mechanically;

transferring a reaction force caused by movement of the object to a first support structure, the first support structure connected with the second portion of the driver;

detecting a position information of the object in the two-dimensional plane by a position detector supported by a second support structure dynamically isolated from the first support structure, the second support structure supports the stage and the base member; and

positioning the object based on a detection result by the position detector.

134. (Cancelled)

135. (Previously Presented) A method according to claim 133, wherein the second support structure is supported on a foundation.

136. (Previously Presented) A method according to claim 135, wherein the second support structure is supported on the foundation with a block between the foundation and the second support structure.

137. (Previously Presented) A method according to claim 136, wherein the block comprises a vibration absorbing assembly that prevents transmission of vibration from the foundation to the second support structure.

138. (Previously Presented) A method according to claim 135, wherein the foundation is the ground or a base structure.

139. (Cancelled)

140. (Previously Presented) A method according to claim 133, wherein the step of moving the stage includes rotating the stage on an axis of the stage.

141. (Previously Presented) A method according to claim 140, wherein the step of positioning the object comprises moving the object based on a detection result by the position detector so as to effect yaw correction.

142. (Previously Presented) A method according to claim 133, wherein the step of moving the stage includes moving the object in first and second linear directions and rotating the object on an axis of the object.

143. (Previously Presented) A method according to claim 142, wherein the step of positioning the object comprises moving the object based on a detection result by the position detector so as to effect yaw correction.

144. - 145. (Cancelled)

146. (Previously Presented) A method according to claim 133, wherein the step of detecting a position comprises projecting a light beam to a first mirror fixed to the stage.

147. (Previously Presented) A method according to claim 133, wherein the stage is a guideless stage having no associated guide member to guide its movement.

148. - 149. (Cancelled)

150. (Previously Presented) A method according to claim 147, wherein the guideless stage is movable over a surface of the base member on a bearing.

151. (Previously Presented) A method according to claim 150, wherein the bearing is a non-contact bearing that supports the guideless stage.

152. (Previously Presented) A method according to claim 151, wherein the non-contact bearing comprises an air bearing.

153. (Previously Presented) A method according to claim 151, wherein the non-contact bearing includes a magnet and a cooperating coil.

154. (Previously Presented) A method according to claim 133, wherein the step of positioning the object comprises moving the stage based on a detection result by the position detector.

155. - 156. (Cancelled)

157. (Previously Presented) A method according to claim 133, wherein the first portion is one of a magnet and a coil.

158. (Previously Presented) A method of making a microlithography system that exposes a pattern of a mask onto an object by a projection system, comprising the steps of:

providing an object stage that holds the object in association with the projection system, the object stage having a mirror;

providing a support structure that supports the projection system and the object stage, the support structure having a base member disposed below the projection system to support the object stage;

providing a vibration absorbing assembling that holds the support structure to prevent transmission of vibration from a foundation to the support structure, a holding surface of the vibration absorbing assembling being higher than a surface of the base member and lower than a holding surface of the mask;

providing a drive having a first portion connected to the object stage and a second portion not connected to the object stage to move the object stage;

providing a reaction frame dynamically isolated from the support structure, the reaction frame connected to the second portion of the drive;

providing a position detector that cooperates with the mirror to detect a position of the object stage, the position detector being supported by the support structure.

159. (Previously Presented) A method according to claim 158, wherein the reaction frame is supported on the foundation.

160. (Previously Presented) A method according to claim 158, wherein the foundation is one of a floor and a base structure.

161. (Previously Presented) A method according to claim 158, wherein the holding surface of the vibration absorbing assembly is higher than a holding surface of the object.

162. (Previously Presented) A method according to claim 158, wherein the second portion of the drive is movable on the reaction frame.

163. (Previously Presented) A method according to claim 162, wherein the second portion of the drive is one of a coil member and a magnet member.

164. (Previously Presented) A method according to claim 158, wherein the base member comprises a horizontal planar surface and the drive moves the object stage in a horizontal plane.

165. (Previously Presented) A method according to claim 163, wherein the base member comprises a horizontal planar surface and the drive moves the object stage in a horizontal plane.

166. (Previously Presented) A method according to claim 158, wherein the support structure supports the mask.

167. (Previously Presented) A method according to claim 165, wherein the support structure supports the mask.

168. (Previously Presented) A method according to claim 158, wherein the support structure supports a condenser lens located above the mask.

169. (Previously Presented) A method according to claim 167, wherein the support structure supports a condenser lens located above the mask.

170. (Previously Presented) A method according to claim 158, wherein the reaction frame does not receive the weight of the base member.

171. (Previously Presented) A method according to claim 169, wherein the reaction frame does not receive the weight of the base member.